Unit 2 – Creating Systems To Manage Information

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Part A – Databases, Queries and Reports

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A1.3 - Normalisation

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A1.3.2 - Relationships and Keys

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Learning Objectives

To understand what is meant by a relationship.

To be able to create Many-To-Many and One-To-Many relationships.

To be able to build joins between tables using primary and foreign keys.

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Before We Start

- Make sure you have a completed student database.
- It should have three tables.
- The tables should be filled with ***data***.
- Each table should have a ***Primary Key***.
- If you do not have this database, ***one is provided for you***.

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What Are Relationships?

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What Are Relationships?

A relationship is when a whole row of data in one table is ***referenced*** or ***used*** in another table.

It is a very simple way of minimising data duplication.

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A Simple Relationship.

- Let's say we are given the following scenario.
- A customer, Jenny Chen, has two addresses.
- One address is a ***work address*** – 28 Bold Street.
- Another address is a ***home address*** - 33 Radley Road.
- How could we store this data in a database?

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Method 1 – A Single Table With Multiple Rows

Customer ID	First Name	Last Name	House Number	Street Name	Address Type
1	Jenny	Chen	28	Bold Street	Work
1	Jenny	Chen	33	Radley Road	Home

Will this work?

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Method 1 – A Single Table With Multiple Rows Won't Work

Customer ID	First Name	Last Name	House Number	Street Name	Address Type
1	Jenny	Chen	28	Bold Street	Work
1	Jenny	Chen	33	Radley Road	Home

You cannot have this!

No - you cannot have two primary keys of the same value!

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Exam Tip – Your Exam Data Is Method #1

This is what you will see in the data given to you in your exam paper.

If you see primary keys being duplicated, you have ***repeated data***.

If you have repeated data, ***you will need to put the data into a new table***.

You will need to build a ***relationship***.

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Method 2 – A Single Table With Multiple Rows and Different Primary Keys

Customer ID	First Name	Last Name	House Number	Street Name	Address Type
1	Jenny	Chen	28	Bold Street	Work
2	Jenny	Chen	33	Radley Road	Home

Will this work?

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Method 2 – A Single Table With Multiple Rows and Different Primary Keys Won't Work

Customer ID	First Name	Last Name	House Number	Street Name	Address Type
1	Jenny	Chen	28	Bold Street	Work
	Jenny	Chen	33	Radley Road	Home

Two different people!

No - this means two completely different people!

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Method 3 – A Single Table With One Row, One Primary Key but Two Pieces of Data!

Customer ID	First Name	Last Name	House Number	Street Name	Address Type
1	Jenny	Chen	28	Bold Street	Work
				Radley Road	Home

Will this work?

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Method 3 – A Single Table With One Row, One Primary Key but Two Pieces of Data Won't Work

Customer ID	First Name	Last Name	House Number	Street Name	Address Type
1	Jenny	Chen	28	Bold Street	Work
				Radley Road	Home

You Can't Do This In A Database

No - you can't store two rows of data in one

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Self-Check: Lesson Review

Do I understand what is meant by a relationship?

Can I explain what is meant by a foreign key?

Can explain what is meant by Referential Integrity?

Can identify a One-To-Many relationship from some supplied data?

Can I create relationships between tables using Microsoft™ Access?

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Further Reading

Websites

https://blog.supportgroup.com/getting-started-with-relational-databases-one-to-one-and-many-to-many-relationships

Videos

Textbook: pp94 – 96; 103 – 110.

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